SANTA CRUZ BIOTECHNOLOGY, INC.

GalNAc-T12 siRNA (h): sc-75088

BACKGROUND

The UDP-N-acetyl-α-D-galactosamine:polypeptide N-acetylgalactosaminyl-transferase (GalNAc-T) family of enzymes are substrate-specific proteins that catalyze the transfer of GalNAc (N-acetylgalactosamine) to serine and threonine residues onto various proteins, thereby initiating mucin-type O-linked glycosylation in the Golgi apparatus. GalNAc-T12 (polypeptide N-acetylgalactosaminyltransferase 12), also known as UDP-GalNAc:polypeptide N-acetylgalactosaminyltransferase 12, is a 581 amino acid protein that displays enzymatic activity towards non-glycosylated peptides such as Muc5Ac, Muc1a and EA2 with no detectable activity towards Muc2 and Muc7. The N-terminal domain is involved in substrate binding and manganese coordination, while the C-terminal domain is involved in UDP-Gal binding and catalytic reaction. Since GalNAc-T12 is highly expressed in stomach, pancreas, small intestine and colon, it may play a significant role in the initial step of mucin-type oligosaccharide biosynthesis in digestive organs.

REFERENCES

1. Elhammer, A.P., et al. 1999. The acceptor specificity of UDP-GalNAc: polypeptide N-acetylgalactosaminyltransferases. Glycoconj. J. 16: 171-180.
2. Guo, J.M., et al. 2002. Molecular cloning and characterization of a novel member of the UDP-GalNAc:polypeptide N-acetylgalactosaminyltransferase family, pp-GalNAc-T12. FEBS Lett. 524: 211-218.
3. Ten Hagen, K.G., et al. 2003. All in the family: the UDP-GalNAc:polypeptide N-acetylgalactosaminyltransferases. Glycobiology 13: 1R-16R.
4. Guo, J.M., et al. 2004. Expression of UDP-GalNAc:polypeptide N-acetylgalactosaminyltransferase-12 in gastric and colonic cancer cell lines and in human colorectal cancer. Oncology 67: 271-276.
5. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 610290. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Tian, E. and Ten Hagen, K.G. 2009. Recent insights into the biological roles of mucin-type O-glycosylation. Glycoconj. J. 26: 325-334.

CHROMOSOMAL LOCATION

Genetic locus: GALNT12 (human) mapping to 9q22.33.

PRODUCT

GalNAc-T12 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GalNAc-T12 shRNA Plasmid (h): sc-75088-SH and GalNAc-T12 shRNA (h) Lentiviral Particles: sc-75088-V as alternate gene silencing products.

For independent verification of GalNAc-T12 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-75088A, sc-75088B and sc-75088C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

GalNAc-T12 siRNA (h) is recommended for the inhibition of GalNAc-T12 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GalNAc-T12 gene expression knockdown using RT-PCR Primer: GalNAc-T12 (h)-PR: sc-75088-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.